

# Twenty First Century- An Era of Infectious Diseases

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Infectious diseases are one of the leading causes of global deaths. More people are killed by infectious diseases than cancer. Global pandemics have been common throughout history, causing devastating consequences that continue to this day. Even at the start of the twenty-first century, there has been a wave of infectious disease outbreaks. This includes but is not limited to the severe acute respiratory syndrome in 2003, the swine flu pandemic in 2009, the respiratory syndrome outbreak in the Middle East in 2012, the Ebola Virus Disease in West Africa in 2013 to 2016 and the Zika Virus Disease in the 2015.<sup>1</sup> These outbreaks caused significant morbidity and mortality and were in addition to the human immunodeficiency virus (HIV) / acquired immunodeficiency syndrome (AIDS), tuberculosis (TB), and malaria. Not only are the health losses substantial, but economic losses are also pertinent to these outbreaks.<sup>2</sup>

Despite the advancements and achievements in medical science and health care, it is evident from history that infectious diseases continue to haunt and threaten humans. A virus outbreak at the end of 2019 is one such example of it, and since then, the world has been battling with the unprecedented spread of COVID-19 (Novel coronavirus disease), which claimed around more than 0.5 million lives in just a short span of 6 months.<sup>3</sup> With WHO declaring it a global pandemic on March 11<sup>th</sup>, 2020, it stirred a large degree of uncertainty, anxiety, fear and economic shutdown worldwide among the masses.<sup>4</sup>

Initially, with no definite treatment available, a number of people lost their lives due to the catastrophic spread of the virus. However, the advent of the promising, safe and effective vaccines against the virus came as a glimmer of light at the end of the long tunnel. The vaccines provided strong protection against the virus with a remarkable reduction in number of hospitalizations and deaths.

Regardless of the breakthrough and commendable efforts for curtailing the COVID19 virus, as per the WHO, the COVID19 pandemic is "far from over" and would take a long time to things to get normal back again.<sup>5,6</sup>

While the world is still struggling with COVID-19, the outbreak of the monkey pox virus in 2022 is the latest addition to infectious disease outbreak of the 21<sup>st</sup> century. WHO has declared the monkey pox outbreak a global health emergency of the highest alert.<sup>7</sup> Monkey pox is unfolding rapidly. Although, in contrast to COVID19, it has a low transmission rate and mild clinical course. Additionally, it doesn't have any definitive vaccine. However, small pox vaccine has been found to be 85% effective as pre exposure prophylaxis.<sup>8</sup>

Though what seems so easy, the availability of the small pox vaccine imposes a question on the hope for timely limiting the progression and transmission of the monkey pox outbreak. Moreover, it is also of vital importance to consider the co-infection potential between COVID19 and monkey virus. This may lead to variable response to vaccine and changes in infectivity pattern. It may also lead to the emergence of a new variant of COVID-19, the severity and pathogenicity of which can't be predicted.<sup>9</sup>

The recurrent emergence and reemergence of infectious disease outbreaks is a serious global health concern. The rising trend of the occurrence of these pandemics and endemics in today's era is an alarming sign. Urbanization, climate change, human to animal, human to human interactions, and more precisely irrational use of antibiotics have significantly contributed to it.<sup>10</sup> Antibiotic resistance is not new. It has been termed as a "silent" pandemic for years and requires the utmost attention.<sup>11</sup> Unregulated and improper use of antibiotics, lack of sanitation and infection prevention and control

have all cumulatively led to the emergence of resistance. The ongoing pandemic has fueled antibiotic resistance and even caused more COVID19 deaths.<sup>12</sup> This silent pandemic is far easier to mitigate than the pandemics. Appropriate measures such as antibiotic stewardship programs, strengthening health care systems, robust policies to tackle antibiotic resistance, and implementation of preventive and control programs may aid in combatting this serious potential threat.

The pandemic in the previous years have taught us to be prepared beforehand. Infectious disease outbreaks are there to stay with us. In today's time a number of infectious diseases are on the rise such as malaria, dengue, zika virus etc and they serve as an equal threat of becoming epidemics in the near future. Additionally, it is also uncertain whether the upcoming outbreaks including monkey pox are exacerbation of COVID-19 or an independent phenomenon. It's high time that nations especially the middle and low-income countries, invest in health care infrastructure, preparation for an epidemic response, and training of public health and healthcare professionals. The emerging and re-emerging of infectious disease requires the call for an action "now or never".

## Reference

- Baker RE, Mahmud AS, Miller IF, Rajeev M, Rasambainarivo F, Rice BL, Tet al. Infectious disease in an era of global change. *Nat. Rev. Microbiol.* 2022. 20(4):193-205. <https://doi.org/10.1038/s41579-021-00639-z>
- Fonkwo PN, Pricing infectious disease: The economic and health implications of infectious diseases. *EMBO reports*, 2008. 9(S1): S13-S17. <https://doi.org/10.1038/embor.2008.110>
- Pitlik SD, COVID-19 compared to other pandemic diseases. *Rambam Maimonides Med. J.* 2020. 11(3):e0027. <https://doi.org/10.5041/RMMJ.10418>
- Cucinotta, D and M Vanelli. WHO declares COVID-19 a pandemic. *Acta Bio Medica: Atenei Parmensis*, 2020. 91(1): 157.
- Two years on COVID-19 pandemic 'far from over'. 2022; Available from: <https://news.un.org/en/story/2022/03/1113632>.
- Su S, L Du and S Jiang. Learning from the past: development of safe and effective COVID-19 vaccines. *Nat. Rev. Microbiol.* 2021. 19(3): 211-219. <https://doi.org/10.1038/s41579-020-00462-y>
- WHO Director-General declares the ongoing monkeypox outbreak a Public Health Emergency of International Concern. 2022; Available from: <https://www.who.int/europe/news/item/23-07-2022-who-director-general-declares-the-ongoing-monkeypox-outbreak-a-public-health-event-of-international-concern>.
- Farahat RA, Abdelaal A, Shah J, Ghozy S, Sah R, Bonilla-Aldana DK, Rodriguez-Morales AJ, et al., Monkeypox outbreaks during COVID-19 pandemic: are we looking at an independent phenomenon or an overlapping pandemic? 2022, Springer.1-3. <https://doi.org/10.1186/s12941-022-00518-2>
- León-Figueroa DA, Bonilla-Aldana DK, Pachar M, Romani L, Saldaña-Cumpa HM, Anchay-Zuloeta C, Diaz-Torres M, et al. The never ending global emergence of viral zoonoses after COVID-19? The rising concern of monkeypox in Europe, North America and beyond. *Travel Med Infect Dis.* 2022. 49: 102362. <https://doi.org/10.1016/j.tmaid.2022.102362>
- Cars O, Chandy SJ, Mpundu M, Peralta AQ, Zorzet A, So AD. Resetting the agenda for antibiotic resistance through a health systems perspective. *The Lancet Global Health.* 2021. 9(7): e1022-e1027. [https://doi.org/10.1016/S2214-109X\(21\)00163-7](https://doi.org/10.1016/S2214-109X(21)00163-7)
- Mendelson, M., M. Sharland, and M. Mpundu, Antibiotic resistance: calling time on the 'silent pandemic'. *JAC-antimicrobial resistance*, 2022. 4(2): dlac016. <https://doi.org/10.1093/jacamr/dlac016>
- Ghosh SC. Bornman and MM Zafer, Antimicrobial Resistance Threats in the emerging COVID-19 pandemic: Where do we stand? *J. Infect. Public Health.* 2021. 14(5): 555-560. <https://doi.org/10.1016/j.jiph.2021.02.011>